history of anatomy and the author of so many clarifying expressions of what other people were trying in vain to set forth.

As a lucid exponent and as a teacher he was pre-eminent. Many young anatomists have had occasion to appreciate his fairness and his weighty help in defending themselves from attacks even from his own countrymen. With his death there passes away perhaps the most influential anatomist of modern times. G. ELLIOT SMITH.

Notes.

THE large group of sun-spots which became visible a few days ago has been accompanied by disturbances of the magnetic and electrical conditions of the earth, manifested by magnetic storms, interruptions of the telephone and telegraph services over the greater part of the world. and brilliant auroral displays. Large sun-spots often appear without producing any such terrestrial effects, and magnetic storms sometimes occur in the absence of sun-spots, so that the relationship between the two phenomena is obviously exceptionable. There is evidence that solar prominences are more closely related to the production of magnetic disturbances on the earth than are sun-spots, which are only visible effects of solar disturbances the exact nature of which remains to be discovered.

THAT wireless telephony is fast emerging from the experimental stage into that of practical utility is evidenced by the interesting demonstrations, in which the *Times* participated last week, between stations equipped by the Marconi Co. at Southwold, in Suffolk, and Zaandvoort, in Holland. There is no technical reason why these stations should not be linked up with the ordinary telephone systems of Great Britain and Holland, so that it would be possible to communicate freely between any point in either country to any point in the other. It is interesting to note that the stations work on the short wave-length of 100 metres, which makes them free from interference from the 600-metre wave commonly used for marine communication and from the higher wave-lengths of the long-distance stations, as well as less likely to be influenced by stray disturbances than if a longer wave-length were employed. Other methods of protection against interference are being experimented with, and also of securing a greater degree of directive effect instead of broadcast emission, which, when such stations multiply, should contribute very materially to freedom from mutual interference. It is not generally known that wireless telephony is already employed by the Stock Exchange in Amsterdam for communicating prices to points all over Holland, and that these messages can be picked up in this country without difficulty. Dr. J. A. Fleming, the pioneer in the applications of the thermionic tube, upon which so much of the advance in wireless telephony is due, points out, in an interview in the *Times*, the great possibilities as well as the great achievements of wireless telephony, and emphasises its advantages over line-working in that no distortion of the wave is produced; as, in the case of wireless, all the harmonics are attenuated in the same proportion as the fundamental, because they are all propagated at the same rate.

THE annual visitation of the Royal Observatory, Greenwich, will be held on Saturday, June 4. The observatory will be open at 3.30 for inspection by invited guests.

PROF. JOHN MERLE COULTER, of Chicago, Dr. Samuel Garman, Prof. Giovanni Battista Grassi, of Rome, Prof. Louis Alexandre Mangin, of Paris, and Prof. Jean Massart, of Brussels, have been elected foreign members of the Linnean Society of London.

AT the anniversary dinner of the Royal Geographical Society, to be held at the Connaught Rooms at 7.30 p.m. on Tuesday, May 31, the guests will include the French Ambassador, General Bourgeois, Earl Beatty, Earl Buxton, Viscount Chelmsford, the High Commissioner for Canada, and Bishop Gore.

IN connection with the Royal Microscopical Society a Paper Industries Section is in course of formation. It will deal with researches relating to timber, wood-pulp, paper, etc. All interested in the subject and willing to assist are invited to communicate with Mr. J. Strachan, 74 Blenheim Place, Queen's Cross, Aberdeen.

THE CROWN PRINCE OF JAPAN, accompanied by Prince Kan-in and a large party, which included Admiral Ogouri and seven senior naval officers, visited Greenwich Observatory on Monday, May 16. The party was received by the Astronomer Royal, Sir Frank Dyson, and the two chief assistants, Mr. H. Spencer Jones and Mr. J. Jackson, and examined with interest the chief instruments in the observatory.

AT the meeting of the Franklin Institute, Pennsylvania, held on May 18, the Franklin medal and certificate of honorary membership were presented to M. Jusserand, French Ambassador to the United States, for Prof. Charles Fabry, of the University of Paris, for his studies in the field of light radiation. The Franklin medal and certificate of honorary membership were also presented to Mr. Frank J. Sprague, New York City.

THE Wild Birds Advisory Committees appointed for England and Scotland by the Home Secretary and the Secretary for Scotland to advise regarding the protection of wild birds held their first meetings on May 12, and a joint meeting on May 13, when general questions of wild bird protection in Britain were discussed. The chairmen of the committees are Viscount Grey of Fallodon, K.G., and Mr. H. S. Gladstone, and the secretary of the Scottish committee is Dr. James Ritchie, Keeper of the Natural History Department, Royal Scottish Museum, Edinburgh.

THE prolonged pause in the seismic activity of the well-known Comrie centre seems to be coming to an end. Towards the close of a similar, but briefer, pause from 1801 to 1839 slight shocks gradually became more frequent, until they culminated in the strong earthquake of October 23, 1839. There was no pronounced movement between the summer of 1898 and that of last year. On July 21, 1920, a shock of intensity 3 (Rossi-Forel scale) occurred, followed by one of intensity 4 on September 14. On April 30 last a still stronger earthquake, the most distinct known to the present inhabitants, was felt at 10.35 a.m. (Greenwich mean time). The shock was strong enough to throw down crockery from shelves, and was accompanied by the usual sound, like the firing of guns.

MR. G. SHEPPARD, of Edmonton, Alberta, informs us that in view of the coming importance of the MacKenzie River Basin of the North-West Territory of Canada by reason of the oil strike made there in 1919, the Imperial Oil, Ltd., has purchased two monoplanes, which are to be used for general reconnaissance and topographical work in these unknown regions. An aerodrome has been established at Peace River Crossing, about 300 miles north of Edmonton, and from this base the planes will operate as far as Fort Norman and the Great Slave Lake areas. The journey takes, normally, three to four weeks under favourable conditions, but it can be made easily in three days by air. The aeroplanes are to be equipped with suitable cameras, by which it will be possible to photograph all water-courses and similar features of the landscape. These photographs will be of value to surveyors and others for checking up the country without using ordinary topographical methods.

AT the annual general meeting of the Institution of Civil Engineers held on April 26, the result of the ballot for the election of officers for the year 1921–22 was declared as follows:—*President:* Mr. W. B. Worthington. *Vice-Presidents:* Dr. W. H. Maw, Mr. C. L. Morgan, Mr. B. Mott, and Sir William H. Ellis. *Other Members of Council:* Dr. C. C. Carpenter, Mr. G. M. Clark, Dr. P. C. Cowan, Col. R. E. B. Crompton, Mr. M. Deacon, Sir Archibald Denny, Bart., Mr. W. W. Grierson, Sir Robert A. Hadfield, Bart., Mr. K. P. Hawksley, Sir Brodie H. Henderson, Mr. E. P. Hill, Mr. G. W. Humphreys, Mr. S. Hunter, Mr. H. G. Kelley, Mr. C. R. S. Kirkpatrick, Mr. F. W. MacLean, Mr. H. H. G. Mitchell, Sir Henry J. Oram, Mr. F. Palmer, Mr. G. Richards, Capt. H. Riall Sankey, Sir John F. C. Snell, Mr. W. A. P. Tait, Mr. E. F. C. Trench, Prof. W. H. Warren, and Sir Alfred F. Yarrow, Bart.

THE members of the Gilbert White Fellowship have resolved to commemorate the bicentenary of the birth of the renowned naturalist whose name their organisation bears by erecting a permanent memorial at Selborne, and by undertaking a regional survey of the parish rendered famous by his great work, "The Natural History of Selborne." The memorial is to take the form of an outdoor bench or seat in stone and timber. The results of the regional survey it is hoped to publish as the work proceeds, so as to make them immediately available to all interested. Many admirers of Gilbert White outside the circle of the fellowship are likely to be glad of the opportunity of taking part in this tribute to his memory. Such contributions as those interested may feel disposed to make should be sent to Messrs. Grindlay and Co., bankers, 54 Parliament Street, London, S.W.1, to be credited to the account of the Gilbert White Memorial Fund, or to the honorary secretary, Winifred M. Dunton, 18 Crockerton Road, Wandsworth Common, London, S.W.17.

AN important step has been taken in America for the presentation of science and scientific facts to the lay public by the formation of a Science Service (*Science*, April 8). The charter is a wide one, authorising the organisation to publish books and magazines, to conduct conferences and lectures, and to produce kinematograph films; the function will be that of liaison officer between scientific circles and the general public. The governing board will consist of ten men of science and five journalists, and any profits which may accrue will be devoted to the development of new methods of popular education in science. The present board of trustees consists of three representatives from the National Academy of Science, three from the American Association for the Advancement of Science, three from the National Research Council, three from the Scripps Estate, which is financing the undertaking, and three professional journalists, under the presidency of Dr. W. E. Ritter, director of the Scripps Institution for Biological Research of the University of California. Dr. Edwin E. Slosson, who for some twelve years was professor of chemistry in the University of Wyoming, and for the past seventeen years has been literary editor of the *Independent* of New York, has been chosen as editor. At present the Science Service will not publish any periodical of its own; it is considered that better results will be obtained by directing attention to the various journals of popular science already in existence, and by supplying newsagencies with authentic, popular articles. The headquarters of the institution have been established provisionally in the building of the National Research Council, 1701, Massachusetts Avenue, Washington, D.C.

DR. T. W. FULTON, scientific superintendent of the Fishery Board for Scotland, has just retired after a service of thirty-four years. The Scottish Scientific Department owed its institution to the recommendation of the Dalhousie Trawling Commission, and in 1888, when Dr. Fulton was appointed, had been in existence for only a few years. In England the scientific study of the sea in connection with fisheries was taken up by the Plymouth Laboratory, and later by certain of the Sea Fisheries Committees, two of which, those of Lancashire and Northumberland, have much good work to their credit. The fisheries are a very intricate, many-sided subject, and Dr. Fulton has laboured to solve many problems which have cropped up in the Scottish administration. The attempt has been made to render the statistics as accurate and informative as possible in an industry which does not lend itself readily to minutely made records. In order to locate the regions in which the fishes were captured by means of the trawl, Dr. Fulton devised the scheme subdividing the North Sea into equally sized divisions numbered consecutively. This arrangement was adopted and found to be of great service. Dr. Fulton has served during the past twenty years as one of the experts on the International Committee for the Exploration of the North Sea, a body which has published many important reports dealing with fisheries biology. In 1911 a Departmental Committee of which he was a member inquired into the Scottish fishing industry; the wide extent and thoroughness of its labours are indicated by the large report which it issued. Dr. Fulton's publications deal with the development, distribution, and migrations of fishes; they are numerous and of great interest and value.

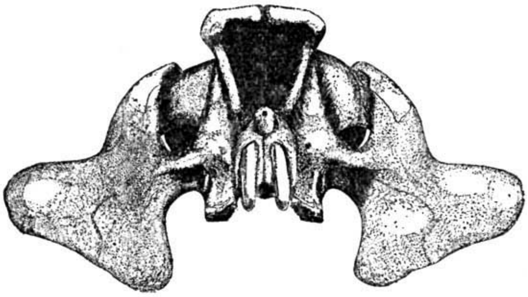
IN an account of the leeches of the Chilka Lake (in the province of Bihar and Orissa) Mr. W. A. Harding records (Memoirs Indian Museum, vol. v., 1920) the occurrence of a colour variety of *Glossosiphonia heteroclita*, a species well known to occur in fresh-water in North America and throughout the greater part of Europe, but now recorded from India for the first time. Mr. Harding has received examples collected in many other parts of India, and the species is evidently widely distributed there. A new species of Piscicola, from fish, and one of Placobdella, from mud-turtles of the genus Emyda, are also described.

As a result of the late war and the consequent dearth of foodstuffs in certain parts of Central Europe, increased interest is being aroused in the wider utilisation of wild plants—more especially fungi—as food for human consumption. An association has been formed in recent years, having its headquarters in Heilbronn a. N., styled the "Pilz- und Kräuterzentrale," amongst the main objects of which are the fostering of the study of fungi and the dissemination of information, particularly as regards the nutritious qualities of the various edible kinds and the properties of those that are noxious or specifically poisonous, amongst the lay public. In furtherance of its aims a congress of mycologists is being arranged under the auspices of the association to be held in Nürnberg during the coming autumn. The association issues a monthly periodical, *Der Pilz- und Kräuterfreunde*, now in its fourth year of publication. The articles in this periodical are naturally more or less of a popular nature, but descriptions of new fungi are also included. One of the recent issues contains a description, with a coloured plate, of a new poisonous species of agaric, *Inocybe lateraria*. In the list of supporters of the association are to be found such well-known names as Günther-Beck v. Managetta, Bresadola, Falck, and Lindau.

THE National Institute of Agricultural Botany has recently published the report of its Potato Synonym Committee for the year 1920. The necessity for reducing to order the chaos existing in the nomenclature of potato varieties has become more urgent than ever in recent years, owing to the fact that some varieties are immune to the dreaded wart disease, while others are susceptible. Two hundred and forty-two varieties are dealt with in the report, and they are classified in forty-two groups. Immunity or susceptibility to wart disease is generally indicated. In a large number of cases the varieties, although possessing different names, were found to be indistinguishable in morphological and certain physiological characters (such as time of maturity, immunity or otherwise to wart disease) from well-known types such as "Up-to-Date," "Abundance," etc., so that in practice one and the same variety may possess many names. It is proposed to publish an annual handbook of potato synonyms, the practical value of which will be considerable. Nevertheless, it is to be hoped that the institute will not rest content with a mere indexing of names. What is really required is a detailed and scientific monograph of the leading types of potato varieties at present in cultivation, with adequate illustrations and descriptions of their differentiating characteristics. The preparation of such a monograph would entail a considerable amount of additional effort; but a better opportunity for embarking on such a project is scarcely likely to occur than that now presented by the work of the National Institute at its Ormskirk Trial Grounds, while it would be difficult to find men more thoroughly equipped for the enterprise than those who form the Synonym Committee.

THE annual report of the Marlborough College Natural History Society for the year ending Christmas, 1920, has just been received. It forms an interesting record of the work carried out by this active and vigorous association. No fewer than fourteen papers were read to the astronomical section dealing with such diverse subjects as the moon, stellar photometry, tides, and relativity. The botanical, ornithological, and entomological sections also receive notice in the report. Their activities were confined mostly to recording the appearance of plants, birds, and insects in the neighbourhood, and the results provide useful contributions to the knowledge of the local natural history. The report concludes with a summary of the meteorological observations made at the college during the year; maximum, mean, and minimum barometric and thermometric readings for the several months are given, together with remarks on observations of wind, rainfall, and sunshine for similar periods. We are glad to see that this useful society is, according to the annual balance-sheet, in a sound position and proposes to carry on and, if possible, extend its labours to other branches of natural history.

THE Queensland Museum recently obtained from post-Tertiary sand on the Darling Downs a marsupial cranium apparently of the species *Nototherium dunense*, founded by De Vis in 1887 on some mandibles and cranial fragments. The new skull is described and figured in the Memoirs of the museum (vol. vii., part 2) by the director, Mr. H. A. Longman, who feels impelled to establish for the species a new genus, Euryzygoma. The character that suggests the name is the enormous relative width given to the skull by the extension, from the lower outer angle of each cheek-bone or zygomatic arch, of a large side-process buttressed by a horizontal platform beneath the orbit. Mr. Longman considers that these processes were for the support of large cheek-pouches, as in the pocket gophers of North America. However that may be, such extensions are characteristic of the Nototheres, and an exaggeration of the character, with the correlated modifications, would scarcely warrant the generic separation of this species from *Nototherium Mitchelli* and *N. tasmanicum*. Mr. Longman, however, states that the upper premolar tooth, on which some stress has been laid by classifiers of marsupials, is oval in the normal Nototherium, but subtriangular in Euryzygoma. From the half-tone reproduction of a greatly reduced photograph it is impossible to check the alleged differences. In all other technical respects Mr. Longman's presentation of his results calls for praise. He is also to be congratulated on an interesting discussion of the most remarkable Diprotodont yet discovered.



Front view of the cranium of Euryzygoma, slightly restored. Actual width 680 mm.

ALASKA magnetic tables and magnetic charts for 1920 have been published by the U.S. Coast and Geodetic Survey as Special Publication No. 63, prepared by Daniel L. Hazard, Assistant-Chief, Division of Terrestrial Magnetism. Charts are given for the several magnetic elements, declination, inclination or dip, and horizontal force or intensity. The area covered by the discussion includes not only Alaska, but also its boundary waters, parts of the North Pacific, the Bering Sea, and the Arctic. Declination and dip are given on the charts to each 1° and the horizontal force for intervals of 0·01 C.G.S. unit. Results are for observations since 1870, and the data now published are said to be sufficiently numerous to show areas of local disturbance, some of which are remarkable. Lines of equal annual change of declination are shown on the isogonic chart, but they are stated to be only rough approximations to the truth. East declination is decreasing in Alaska except in the south-eastern portion, where the change is negligible. It is not considered advisable at present to attempt to draw lines of equal annual change of dip or of horizontal force. The tabular matter shows that the dip appears to be decreasing in the greater part of Alaska at the rate of 1′ or 2′ a year, and that the annual change of horizontal intensity is decreasing in the southern part of the territory and increasing in the northern, but the rate of change is small.

WE have received from Dr. J. Newton Friend a copy of his paper entitled "Iron in Antiquity," reprinted from the Transactions of the Worcestershire Naturalists' Club. Dr. Friend recalls the statement of Cæsar that the Britons were accustomed to use bars of iron in place of coins as currency. Several hundreds of these, which have escaped, more or less, the ravages of time, have been found and placed in different museums, notably the British Museum and the local museum at Worcester. They resemble swords and consist of a flat and slightly tapering blade with blunt vertical edges. Owing to corrosion all the bars have suffered some loss in weight, but many of them have been only slightly oxidised, and a rough estimate of their original weight can be made. The weights are found to approximate 309 grams, or some multiple or sub-multiple of this amount. In all, six different denominations have been found. In spite of their resemblance to swords, Dr. Friend advances good reasons for considering that these are the currency bars referred to by Cæsar, the use of which, indeed, dates back to the early Greeks, and survives to-day in some parts of Africa. His paper also deals at some length in an interesting way with early British water-clocks.

THE Dewey decimal system of classifying books in a reference library is being adopted in America, and modifications of it are widely used. The radio laboratory of the Bureau of Standards has extended this method and applied it to the classification of books and pamphlets in its library. In the Dewey classification "radio" would be represented by 621·384. The number 600 denotes the class (useful arts), the number 20 denotes the division (engineering), and the number 1 denotes the section (mechanical). Similarly, 0·300 stands for "electrical," 0·080 for "communication," and 0·004 for "radio." As the library is a collection of matter dealing with radio, the number 621·384 is denoted by R, and a further number of three figures is added. For instance, R211 stands for "resonance methods of measuring wavelengths." R200 contains information on "radio measurements and standardisation," R10 denotes "theory," and R1 "statistics." An essential part of the method is the alphabetical index. We look up, for instance, "resonance methods" and find R211. This gives us the number of the shelf in the library on which the required books or pamphlets will be found, the shelves all being classified in numerical order. The books on the adjacent shelves also treating of cognate subjects can sometimes be usefully consulted at the same time. The classification is good and the alphabetical index very complete. We missed, however, the word "thermionic."

MESSRS. C. BAKER, of 24 High Holborn, W.C.1, have issued a new edition (No. 72) of their catalogue of second-hand scientific instruments. As is customary in these lists, the items are grouped in sections according to the subjects with which they are related. Twelve such sections appear in the list before us, five of which deal with apparatus which may be classed as physical. Section I., dealing with microscopes and their accessories, includes particulars of a number of microscopes both large and small, and a long list of object-glasses, eye-pieces, condensers, etc. The astronomical section (No. III.) describes numerous telescopes of different types and a very varied collection of eye-pieces. Section VII. is devoted to what may be termed academic physical apparatus, and Section X. to photographic apparatus. The book list (Section XI.) includes a number of books and journals, among which we notice vols. xxviii.–civ. of NATURE.

MESSRS. G. BELL AND SONS will publish next month "Motya: A Phœnician Colony in Sicily," by Joseph I. S. Whitaker (of Malfitano, Palermo). Motya was one of the latest sites occupied by the Phœnician colonisers of Sicily. Though its exact position was long a matter of doubt, it is now identified by archæologists with the small island of San Pantaleo at the north-west extremity of Sicily. Recent excavation undertaken by its owner, Mr. Whitaker, has confirmed this conclusion, and the forthcoming volume contains a detailed account of his discoveries.

IN a paper entitled "Studies on Phototropism in Solution," part i. (Journ. Amer. Chem. Soc., vol. xliii., 1921), Prof. B. K. Singh indicates some interesting cases of phototropism in solution which he is investigating, and points out that his preliminary results do not fall into line with Senier and Shepheard's explanation that phototropic transformations are due to extramolecular rearrangements.

UNDER the title *Dactylography* a bimonthly magazine is to appear on July 1. It will deal chiefly with the evidence for criminal and other identifications by means of finger-prints; but attention will also be given to a study of the detective aspects of footprints, tattoo marks, deformities, and related matters. The magazine will be conducted by Mr. Henry Faulds, Regent House, Hanley, Stoke-on-Trent.

MR. F. EDWARDS, 83 High Street, Marylebone, W.1, has issued at an opportune moment an interesting catalogue (No. 413) of nearly four hundred entries of books, manuscripts, letters, documents, and engravings relating to Napoleon and his times. Many choice works are offered for sale. The list can be obtained free of charge.

MR. P. BRUCE WHITE directs attention to a misinterpretation indicated by a sentence in the article on researches on bee disease in the issue of NATURE for April 28, p. 284. Instead of "The tracheæ become darkened and ultimately black by the increasing deposition of chitin," it should read: ". . . by the increasing amount of fæcal matter deposited by the mites."

Our Astronomical Column.

COMETS.—A new comet 1921*c* was discovered by M. Dubiago, Petersburg, on April 29. The following orbit has been received by telegram:—

$$T = 1921 \text{ May } 7{\cdot}611 \text{ G.M.T.}$$
$$\omega = 104^\circ\ 45'$$
$$\Omega = 66^\circ\ 4'$$
$$i = 21^\circ\ 42'$$
$$\log q = 0{\cdot}02731$$

Ephemeris for Greenwich Midnight.

		R.A. h. m. s.	N. Decl. ° ′	Log r	Log Δ
May	20	8 56 45	39 46	—	—
	24	9 21 6	37 33	0·0419	9·9661
	28	9 44 44	34 58	0·0492	9·9620

Herr Reinmuth, of Königstuhl, obtained a twelve-minute exposure plate of Reid's comet on April 30. It shows a faint tail 40′ long in P.A. 266°, slightly curved at its extremity towards smaller P.A. There is also a group of short streamers with centre in P.A. 225°.

Corrections to the ephemeris of Pons-Winnecke:—May 22, $-31\frac{1}{2}$m., $-1^\circ\ 0'$; May 26, -45m., $-5'$; May 30, -59m., $+1^\circ\ 43'$. It is a curious coincidence that the three comets now visible are all circumpolar, and their perihelion distances are nearly equal, all being slightly in excess of unity.

Mr. Denning writes that on April 10 Winnecke's comet was an easy object in a $6\frac{1}{2}$-in. refractor, power about 20. The comet was estimated to be about 9th magnitude, and some 5 or 6 minutes of arc in diameter, though it was difficult to define exactly the outer faint limits of the nebulosity. As the comet is brightening, it should become rather conspicuous even in small telescopes after the present moon has left the evening sky, on about May 25. On that date the comet will be 17 millions of miles from the earth, and its position in the heavens will be two degrees south of δ Cygni. It is travelling rather swiftly to the south-east, and on May 30 will be eight degrees south-south-east of α Cygni. It will then probably be about 7th magnitude, but many comets vary in their light in an inexplicable manner.

THE ECLIPSING VARIABLE U CEPHEI.—The study of eclipsing variables, from which a large amount of information on the sizes, densities, and brightness of the components may be gained, played a large part in the development of the theory of giant and dwarf stars. It is therefore not surprising that Mr. R. S. Dugan, one of the assistants of Prof. H. N. Russell at Princeton, has produced a monograph on U Cephei. The eclipse of the primary star (which is of type A_0) is total, so that we get the spectrum of the secondary isolated. Miss Cannon has recently determined its type as K_0. Since this is the larger star, but the less luminous, both would appear to be in the giant stage.

The light-comparisons were made visually, and in the course of them reason was found to suspect the variability of B.D. 81·27° and 81·30°. The secondary minimum, being an annular eclipse, gives information as to the degree of darkening at the limb. In the final elements the limb-light is taken as one-third of that at the centre. The orbit is sensibly circular; taking its radius as unity, the radii of the stars are 0·20 and 0·32, and the inclination of orbit plane 86·4°. The densities are (somewhat conjecturally) given as 0·214 and 0·022 of that of the sun. From asymmetry in the light-curve it is concluded that the bright star rotates more rapidly than the period of revolution, producing a tidal lag of 24°. A further result of tidal friction is traced in the lengthening of the period of variation by 9 seconds in 60 years; this is indicated with considerable probability by some early observations of magnitude by Schwerd and Carrington. The system thus furnishes an interesting illustration of tidal evolution.